Morpholino antisense oligonucleotides (Mo, Gene Tools)

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| **Name** | **Sequence (5’→3‘)** | **Source** |
| ControlMo | CCTCTTACCTCAGTTACAATTTATA | Gene Tools |
| *ptprk* Mo | TTCTTACCTGCACACTTGGTTCTTG | This paper |
| *znrf3* Mo1 | CCACTTACCTGCACGATCTCCCCCT | This paper |
| *znrf3* Mo2 | AACATAATTTCCCAGTCCTCAGTGG | This paper |
| *lrp6* Mo | CCCCGGCTTCTCCGCTCCGACCCCT | Hassler et al., 2007 |
| *β-catenin* Mo | TTTCAACCGTTTCCAAAGAACCAGG | Heasman et al., 2000 |

Pimers (Sigma) used for cloning

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| **Gene** | **Sequence (5’→3‘)** |
| *X. tropicalis* ptprk | Forward: CCCCCCGGGGAGCCTCCAAGGCCTATTGCReverse: CCCGAATTCGGATGGTAGTCCCTGGATGC |
| *X. tropicalis* znrf3 | Forward: ATAAGAATGCGGCCGCATGCACCCACTTGGACTCTGTAATReverse: ACGCGTCGACGTCCTGAAGATGCATGGTCCAGT |
| *Human* pCS2-V5-PTPRK | Forward: CCC**TCCGGA**CAAGGCCAGTTCTCCGCAGGTReverse: CCC**CTCGAG**TTAAGATGATTCCAGGTACTCCAAAGC |
| *Human* pCS2-V5-PTPRKΔC | Forward: CCC**ATCGAT**GCCACCATGGATACGACTGCGGCGGCReverse: CCC**TCCGGA**TTTTACAATTAATATGACAACTAGGAG |
| *Human* pCS2-V5-PTPRK C1089S | 1st PCRForward(1): AATAAGATCTTCTTGAACTGGReverse(1): CAGCACCAGCACTGGAATGTACAAForward(2): TTGTACATTCCAGTGCTGGTGCTGReverse(2): TACGCCGAGATCTTAAGGC2nd PCRForward(1): AATA**AGATCT**TCTTGAACTGGReverse(2): TACGCCG**AGATCT**TAAGGC |
| *Human* pCS2-V5-PTPRK D1057A | 1st PCRForward(1): TTGGCTGTACAGGGATGGCTReverse(1): ATGGGCAGGCCAGCCCGTGAAATGForward(2): CATTTCACGGGCTGGCCTGCCCATReverse(2): GCACTGCAATGTACAACGATG2nd PCRForward(1): TTGGC**TGTACA**GGGATGGCTReverse(2): GCACTGCAA**TGTACA**ACGATG |
| *Human**pcDNA4/TO-ZNRF3Δ4Y-HA* | Forward: Phos - TTCCAGGGCCTCAGCTACCCGReverse: Phos - CTGGGAGAAGCAAGCTGCCTT |
| *Human**pcDNA4/TO-ZNRF3(4YF)-HA* | Forward: Phos - CACTTCTTCTTCCAGGGCCTCReverse: Phos - CTGGAACATAGTTTCGAATTGTG |
| *Human* pCS2-V5-Frizzled5 | Forward: CCC**TCCGGA**GCGTCCAAGGCCCCGGTGTGReverse: CCC**TCTAGA**TTACACGTGCGACAGGGACACC |

Primers (Sigma) for synthesis of linear DNA template of sgRNA

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| **Gene** | **Sequence (5’→3‘)** |
| ControlsgRNA | Forward: GCAGCTAATACGACTCACTATAGGTTTTAGAGCTAGAAATAReverse: AAAAGCACCGACTCGGTGCCACTTTTTCAAGTTGATAACGGACTAGCCTTATTTTAACTTGCTATTTCTAGCTCTAAAAC |
| *X. tropicalis ptprk* sgRNA | Forward: GCAGCTAATACGACTCACTATAGTGTGGTGGTGCAATAGGCCTGTTTTAGAGCTAGAAATA (sgRNA sequence is wavily underlined)Reverse: The same with contrl gRNA |

Primer for CRISPR genotyping

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| **Gene** | **Sequence (5’→3‘)** |
| X.tropicalis *ptprk*  | Forward: AGCCTCAGTCTGGCTTTTTAATTT Reverse: CTCAAGGTTAACGCTACGAAAAATC |

Quantitative RT-PCR primers (Sigma) and UPL probe numbers (Roche)

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| **Gene** | **Sequence (5’→3‘)** | **UPL probe** |
| Human *AXIN2* | Forward: CCACACCCTTCTCCAATCCReverse: TGCCAGTTTCTTTGGCTCTT  | 32 |
| Human *GAPDH* | Forward: GCATCCTGGGCTACACTGAGReverse: AGGTGGAGGAGTGGGTGTC | 82 |
| Human *LRP6* | Forward: GGCACTTACTTCCCTGCAATReverse: TGTAATGTGATCGCTCTGTGG | 22 |
| Human *PTPRK* | Forward: TGAGGAACAGCAAGCCAAAReverse: TCCAAAGCTACATCATAGCAGAA | 31 |
| Human *RNF43* | Forward: GTTTGCTGGTGTTGCTGAAAReverse: TGGCATTGCACAGGTACAG  | 67 |
| Human *ZNRF3* | Forward: TGTGCCATCTGTCTGGAGAAReverse: TTCCTGTGAAACCGGTGAGT  | 17 |
| *X. tropicalis bf1* | Forward: GCAAGGGCAACTACTGGATGReverse: TGGTCCCACCAATGAACAC | 3 |
| *X. tropicalis lrp6* | Forward: TCCTCCAGCACTAAAGGAACCReverse: TCCATTGTGTAATGGGAACG | 10 |
| *X. tropicalis odc* | Forward: tttggtgccacccttaaaacReverse: ccactgccaacatggaaac | 50 |
| *X. tropicalis otx2* | Forward: tacatccgtcggtgggataReverse: gctctggtgaaagtggtcct | 82 |
| *X. tropicalis ptprk* | Forward: TTGGATCCAGACACGGAGTAReverse: GGGTTTTAGGTGTTCTCATAGGC | 2 |
| *X. tropicalis sox3* | Forward: agccatcacctcccacacReverse: caggtacatgctgatcatatctcg | 14 |
| *X. tropicalis znrf3* | Forward: CACACTACTGAGTTACAAGGGAGGTReverse: TCATCGTTGTTATTACAGAGTCCAA | 81 |

siRNA information (Horizon Discovery)

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| **Gene** | **Cat#** |
| siGENOME SMARTpool human PTPRK siRNA | M-004204-01-0005 |
| siGENOME human PTPRK siRNA #2 | D-004204-02-0005 |
| siGENOME human PTPRK siRNA #5 | D-004204-05-0005 |
| siGENOME Non-targeting siRNA #1 | D-001210-01-20 |
| siGENOME SMARTpool human ZNRF3 siRNA | M-010747-02-0005 |
| siGENOME SMARTpool human RNF43 siRNA | M-007004-02-0005 |
| siGENOME SMARTpool human PTPRG siRNA | M-008069-00-0005 |
| siGENOME SMARTpool human PTPRA siRNA | M-004519-01-0005 |
| siGENOME SMARTpool human PTPRH siRNA | M-009448-01-0005 |
| siGENOME SMARTpool human PTPRF siRNA | M-008375-02-0005 |
| siGENOME SMARTpool human PTPRS siRNA | M-009662-02-0005 |
| siGENOME SMARTpool human PTPRJ siRNA | M-008476-02-0005 |
| siGENOME SMARTpool human PTPRM siRNA | M-006326-01-0005 |
| siGENOME SMARTpool human LRP6 siRNA | M-003845-03-0005 |
| siGENOME SMARTpool human -catenin siRNA | M-003482-00-0005 |